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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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1281/1202

EXAMINER

YU, R. H.

ART UNIT

PAPER NUMBER

1301

DATE MAILED: 12/02/95

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/578,109

Applicant(s)

Chikaki et al

Examiner

Michele K. Yoder

Group Art Unit

1301



☒ Responsive to communication(s) filed on Apr 4, 1996

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-9 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-9 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Specification

1. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: Page 3, line 2, "rifting" and line 6, "laminated in each other"; page 6, line 31, "sate", and line 43, "extrude above"; etc.

Claim Rejections - 35 USC § 112

2. Claims 1-9 are under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 6, the preamble "A laminating apparatus for laminating materials to be laminated" is redundant. Also in the preambles, "which comprising" is awkward. In subparagraph (a) of claims 1 and 6, the phrase "wherein both chambers are divided with a diaphragm means" is confusing as it implies that each of the chambers has a diaphragm therein when it appears that applicant only intends for a single diaphragm means to be present for dividing

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the upper chamber from the under chamber. Subparagraph (b) of the independent claims are confusing as it implies that there are two "stages" e.g. a heating stage and a stage in the under chamber. It is suggested that the subparagraphs be changed to clarify there is only one stage and that this stage (the heating stage) is positioned in the under chamber. In claim 1, subparagraph (c) is confusing. It appears that applicant intends to claim that the heating stage is movable to a downward position, however, this is not clear from the claim language.

Claims 4 and 8 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 4 and 8 do not *structurally* further limit the *apparatus* of independent claims 1 and 6. The material worked upon or produced e.g. a solar cell panel, does not have any patentable weight in apparatus claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garabedian.

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Garabedian shows a laminating apparatus essentially as claimed including upper and under chambers with diaphragm means (4,5) separating the chambers and a heating means (stage 1, 2) which is movable in relation to the materials being laminated (col 3, lines 6-17 and col. 4, lines 16-35). Garabedian fails to specifically show a "supporting means" for supporting the laminae, however, Garabedian does show these laminae in a suspended position (note figs. 1 and 2) and does teach that the diaphragm holding means and the heating means are movable with respect thereto. It would have been obvious to one having ordinary skill in the art at the time of the invention that the laminating apparatus of Garabedian would include a supporting means for supporting the laminae for lamination as such would be necessary so that the diaphragm supporting means and the heating means may be moved into contact therewith.

As to claim 4, the laminating apparatus of Garabedian would be capable of producing a laminated solar cell.

As to claim 5, carrying means are conventional in laminating apparatuses to facilitate a continuous movement of materials into and out of the laminators.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garabedian as applied to claim 1 above, and further in view of Vogt.

Vogt teaches the use of supporting rods (22a, 22b) for supporting a substrate in a laminating apparatus. It would have been obvious to one having ordinary skill in the art at the

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time of the invention to use supporting rods for supporting the substrate in the Garabedian apparatus in view of the teachings of Vogt that such are conventional supporting means.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garabedian as applied to claim 1 above, and further in view of Miyashita et al.

Miyashita, directed to a vacuum laminating apparatus, teaches that it is well known to include multiple laminating sections stacked in a vertical direction (figs. 1 and 2). It would have been obvious to one having ordinary skill in the art at the time of the invention to use multiple laminating sections stacked vertically in the Garabedian apparatus in view of the teachings of Miyashita that such is conventional in vacuum laminating devices.

7. Claims 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garabedian in view of Hinterseer.

Garabedian teaches a vacuum apparatus wherein the heating means is movable with respect to the laminae. Hinterseer teaches a vacuum laminating apparatus wherein the laminae are movable with respect to the heating plate (stage) (col. 4, lines 16-26 and col. 6, lines 46-68). It would have been obvious to one having ordinary skill in the art at the time of the invention to movable support the laminae versus the heating stage in the Garabedian apparatus in view of the teachings of Hinterseer that movable support means are well known.

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8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garabedian in view of Hinterseer as applied to claim 6 above, and further in view of Miyashita et al.

Miyashita is applied as above in paragraph 6.

9. The claims are not presently written in the environment of solar cell lamination, however, the following rejection is being applied as if the claims were so written.

10. Claims 1, 4-6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art in view of Tourneux and in view of either Garabedian or Hinterseer.

The admitted state of the prior art teach that solar cell laminating apparatuses which include an upper and under chamber separated by a diaphragm means alongwith a heating stage are well known(specification-page 1). The admitted state of the prior art teaches that these apparatuses do not have the capability of controlling the amount of heat applied by the heating stage (e.g. by movement of the heating stage and/or the laminae) prior to vacuum withdrawal resulting in entrapment of air between the laminae. Tourneux, directed to a solar cell laminating apparatus, teaches providing means in the apparatus for controlling the movement of the laminae during lamination to ensure complete evacuation of the air between the laminae (fig. 5 and col. 6, line 58-col. 7, line 33). Tourneux fails to specifically teach the location of the heating means relative to the laminae, only stating that after evacuation, then the layers are heated under pressure. Garabedian and Hinterseer, both directed to vacuum laminating apparatuses, teaches

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that it is well known to control the movement of the heating means and/or the laminae relative to one another. It would have been obvious to one having ordinary skill in the art at the time of the invention to provide means for moving the heating stage and/or the laminae, as taught by Garabedian and Hinterseer in the apparatus of the admitted state of the prior art in view of the suggestion by Tourneux that controlled movement of the laminae during evacuation and heating is desirable in the solar cell laminating art.

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art in view of Tourneux and Garabedian as applied to claim 1 above, and further in view of Vogt.

Vogt is applied as above to teach supporting rods as conventional supporting means.

12. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art in view of Tourneux and either Garabedian and/or Hinterseer as applied to claims 1 and 6 above, and further in view of Miyashita.

Miyashita is applied as above to teach multiple stacked laminating sections to be well known.

No claim is allowed.

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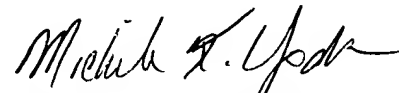
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Michele Yoder** whose telephone number is **(703) 308-2065**. The examiner can normally be reached on Monday, Wednesday, and Thursday from 6:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball, can be reached on (703) 308-2058. The **fax** phone number for this group is **(703) 305-7115**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0651.

MKY

November 26, 1996


MICHELE K. YODER
PRIMARY EXAMINER
GROUP 1300